ECA Update
February 29, 2016

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House Subcommittee on Energy and Water Development Appropriations Hearing ***"Budget Hearing - Department of Energy"*** (9:30 AM)
Visit website.

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01

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ICYMI -- DOE Issues Final Environmental Impact Statement for Disposal of Greater-Than-Class C Waste

DOE-EM

WASHINGTON, D.C. – The U.S. Department of Energy (DOE) today issued a Final Environmental Impact Statement (EIS) that evaluates the potential environmental impacts associated with the proposed development, operation, and long-term management of one or more disposal facilities for greater-than-class C (GTCC) low-level radioactive waste (LLRW).

The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the responsibility for the disposal of GTCC LLRW to the federal government.

Naval Reactors"
(1:30 PM)
Visit website.

March 2016

02

House Subcommittee on Energy and Water Development Appropriations Hearing
"Budget Hearing - Department of Energy, Applied Energy"
(10:30 AM)
Visit website.

March 2016

03

Senate Energy and Natural Resources Hearing
"***Hearing to examine the Department of Energy's budget request for Fiscal Year 2017"***
(10:00 AM)
Visit website.

August 2016

DOE's Office of Environmental Management was designated as the specific office responsible for GTCC LLRW disposal. DOE remains committed to disposing of the GTCC LLRW.

The Department evaluated five alternatives in the Final EIS for the disposal of the GTCC LLRW and DOE-owned GTCC-like waste. The preferred alternative for the disposal is the Department's Waste Isolation Pilot Plant near Carlsbad, New Mexico, and/or land disposal at generic commercial facilities. The land disposal conceptual designs could be altered to provide the optimal application at a given location.

GTCC LLRW has radionuclide concentrations exceeding the limits for Class C LLRW as established by the Nuclear Regulatory Commission.

GTCC waste is generated commercially. GTCC-like radioactive waste is owned or generated by DOE and has characteristics similar to GTCC LLRW. GTCC-like waste consists of LLRW and non-defense-generated transuranic waste.

The Final EIS is not a decision on GTCC LLRW waste disposal. Prior to making a final decision on which disposal alternative(s) to implement, which will be included in a Record of Decision, the Department will submit a Report to Congress on disposal alternatives for GTCC LLRW and await action by Congress as required by the Energy Policy Act of 2005.

Read the Final EIS here.

Two new members to DOE's environmental panel
Knox Blogs
February 25, 2016
LINK

The Department of Energy announced two new members to its Oak Ridge citizens advisory board that provide advice and recommendations to the environmental cleanup program.

9-10

Third Annual Intermountain Energy Summit
Idaho Falls, ID
Visit website.

September 2016

14-15

DOE National Cleanup Workshop
Hilton Alexandria Mark Center
Alexandria, VA
Visit website.

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Kennetha Eikelberg, who lives in Knoxville is a "a self-employed corporate regulatory compliance consultant with more than 25 years of industry experience and extensive knowledge of the site's cleanup efforts." She previously worked at the Transuranic Waste Processing Center. She has degrees from Purdue and American Intercontinental University.

Elizabeth Ross also lives in Knoxville. She is vice president and Knoxville branch manager at Engineering Consulting Services Central, which provides geotechnical engineering, environmental consulting, construction materials testing, and facilities engineering services. Ross is a former OSHA health compliance officer, with degrees from Winthrop University and the University of Montana.

DOE's Office of Environmental Management announced earlier in the week that it is seeking volunteers to filll additional vacancies on the Site Specific Advisory Board.

The federally chartered advisory board can have up to 22 members. Applications are available at www.energy.gov/orssab.

Obama plan to de-fund Savannah River plutonium conversion plant draws fire
Washington Post
February 25, 2016
LINK

One of the items in the small type of President Obama's fiscal 2017 budget was the proposal to drop funding for the Savannah River plutonium mixed oxide recycling plant, designed for converting weapons-grade plutonium into fuel for commercial nuclear power plants. The project is years late and billions of dollars over budget.
In the budget, the Energy Department's National Nuclear Security Administration said simply that it would "pursue a dilute and dispose

approach as a faster, less expensive path to meeting the U.S. commitment to dispose of excess weapons grade plutonium."
That proposal, however, has drawn fire from politicians from South Carolina, where about 1,200 jobs and about $300 million a year could be lost. Sens. Lindsay O. Graham (R) and Tim Scott (R) as well as Rep. Joe Wilson (R), whose district includes the Savannah River site, have criticized the plan.

State Attorney General Alan Wilson (R) has filed a lawsuit in federal district court to keep the plant alive, arguing that abandoning it would violate an arms control agreement in 2000 between the United States and Russia for disposing of 34 metric tons of weapons-grade plutonium. "The Department of Energy has continually shown disregard for its obligations," he said in a statement. "The federal government is not free to flout the law. This behavior will not be tolerated."

Now a group of some of the most prominent former diplomats and nonproliferation experts — alarmed by the cost and proliferation risks involved with the MOX process — have weighed in on the side of the Obama administration. In a letter to Energy Secretary Ernest Moniz sent Tuesday, the 13 experts said that the arms control agreement with Russia does not require the United States to use the MOX recycling plant to deal with the plutonium from decommissioned weapons.

"In fact, the agreement explicitly allows each side to change plutonium disposition methods and was already modified once in 2010 to allow Russia to pursue an alternative disposition approach to its own MOX program, which, like ours today, was judged to be too expensive to complete," the group said. "As long as our government pursues a reasonable alternative to dispose of the surplus material, the agreement is not a barrier to doing so."

A nation that combines innovation with responsive care and sound policy succeeds, and thrives. The group also raised concerns about what it called the increasing possibility that rivalry between China, Japan and South Korea — and fears of North Korea's pursuit of more advanced nuclear weapons —

could prompt those countries to build similar MOX plutonium plants, which could make it easier later to produce plutonium suitable for additional weapons.

“There are increased political pressures to proceed with plutonium separation in Japan and China, and to gain U.S. consent for reprocessing in South Korea,” they wrote. “While the plans are to produce plutonium fuel for power reactors, the same plutonium could be used to produce thousands of warheads.”

Japan is nearing completion of a costly plutonium recycling plant at Rokkasho, although it has pushed back the start date of the plant. And in South Korea, the letter notes, “shortly after North Korea’s latest nuclear-weapon test, both South Korea’s ruling party parliamentary floor leader and the party’s chief policy maker publicly urged that South Korea pursue nuclear reprocessing as a military hedge.” China is also seeking reprocessing technology from France.

The signatories to the letter include former ambassador Thomas Pickering; Jessica Mathews, a former head of the Carnegie Endowment for International Peace; former senior nonproliferation officials Robert Einhorn and Gary Samore; Ambassador Robert Gallucci, a former assistant secretary of State for political-military affairs; Joseph Nye, a former chairman of the National Intelligence Council; Ploughshares Fund President Joseph Cirincione; former Nuclear Regulatory Commissioners Peter Bradford and Victor Gilinsky; David Freeman, a former chairman of the Tennessee Valley Authority’s board of directors; Henry Sokolski, a former Pentagon official for nonproliferation; and Frank von Hippel, a former assistant director for national security at the White House’s Office of Science and Technology Policy.

Last year the group wrote to Moniz urging him and the Obama administration to end funding of the Savannah River site.

"If we fail to terminate our MOX program, we will have far less credibility to engage them in efforts to restrain such activities in East Asia," the group's letter concluded. "In short, contrary to the claims of its defenders, the arms-control and nuclear security arguments weigh heavily for ending the MOX project, not for continuing it."

Tentative $5 Million Settlement Reached Over Paducah Diffusion Plant Violations

WFPL

February 25, 2016

LINK

Defense contractor Lockheed Martin has agreed to pay $5 million to the federal government to settle a pair of 17-year-old lawsuits over contamination from hazardous waste at the Paducah Gaseous Diffusion Plant. The agreement is tentative until approved by the federal government.

The Paducah Gaseous Diffusion Plant is owned by the U.S. Department of Energy. From the 1960s until 2013, the facility enriched uranium for nuclear power plants. The plant hasn't operated since 2013, and now the government is spending hundreds of millions of dollars to decontaminate and decommission the property.

In the 1980s and 1990s, Lockheed Martin and its subsidiaries were contractors at the plant. The lawsuits allege the company didn't properly handle, store and transport hazardous waste, like companies are required to under federal law. The lawsuits also claim Lockheed Martin knew it was improperly handling and storing the hazardous waste, and lied about it to the federal government.

The hazardous waste in question includes chemicals like hydrofluoric acid, a contact poison, and trichloroethylene, a probable carcinogen. TCE contaminated the groundwater on the plant's site, too.

The lawsuits cover the eriod between 1984 and 1998, and were originally filed in 1999 by the U.S. Department of Justice, environmental non-profit Natural Resources Defense Council and several former employees of the plant.
From the complaint:

"Defendants knew of substantial non-compliances with [the Resource Conservation and Recovery Act] that they failed to report to the government. Those non-compliances included the illegal storage of hazardous wastes in approximately 150 areas known as "Material Storage Areas" or "MSA's," as well as the defendants' failure to make hazardous waste determinations, their failure to comply with land disposal restrictions for hazardous waste, their failure to comply with hazardous waste shipment requirements, their operation of a hazardous waste disposal facility without a permit or interim status, and their failure to comply with RCRA permit conditions…Furthermore, defendants knowingly concealed the fact that large quantities of waste contaminated with trichloroethylene (TCE) from degreasing activities at the PGDP constituted 'listed' hazardous waste."

The $5 million settlement is paltry compared to what Lockheed Martin was paid in awards and incentive pay for a job the company allegedly wasn't performing. The lawsuit lays out more than $100 million dollars the government paid Lockheed Martin, noting that had authorities known the violations were occurring, they wouldn't have paid such high amounts.

Calls to lawyers representing the plaintiffs weren't returned Thursday.

A spokesperson for Lockheed Martin also didn't return calls for comment, but in the company's annual report to the Securities and Exchange Commission filed Wednesday the company included notice of the tentative settlement.

"We believe that we have substantial defenses to all of the allegations and have agreed to settle the case to avoid the costs of further litigation of this

matter which has been ongoing in excess of 16 years," the report said. "We will admit no liability or wrongdoing in resolving the matter."

DOE proposes sparing Nevada test site from more low-level nuclear waste

Las Vegas Review-Journal

February 26, 2016

LINK

WASHINGTON — A state official on Friday welcomed a new federal report that did not pick the Nevada National Security Site the "preferred alternative" for the disposal of low-level radioactive waste.

Instead, the U.S. Department of Energy gave that designation to the Waste Isolation Pilot Project near Carlsbad, N.M., and possibly generic commercial facilities.

"This outcome is what we wanted," said Leo Drozdoff, director of the Nevada Department of Conservation and Natural Resources and a member of a working group made up of state and DOE staff.
Drozdoff cited an agreement that allowed "us to have detailed conversations with DOE about this topic."

Gov. Brian Sandoval and U.S. Energy Secretary Ernest Moniz appointed the working group in 2013 to hash out issues surrounding the Nevada National Security Site.

Located about 65 miles northwest of Las Vegas and formerly known as the Nevada Test Site, it already serves as a disposal for waste generated by Department of Energy facilities and as an interim storage site for waste waiting to be transferred to the WIPP facility.
Current activity at the Nevada site is expected to continue as is.

DOE's report deals with the potential environmental impacts linked to the proposed development and long-term operation of a facility to handle the disposal of the "Greater-Than-Class C (GTCC) Low-Level Radioactive Waste (LLRW) and GTCC-like waste."

It does not represent the agency's final decision.

Additional reviews will be conducted by the federal agency, which also must submit a report to Congress and wait for congressional action before issuing its "Record of Decision."

According to the Energy Department, the waste consists of a small volume generated throughout the country by Nuclear Regulatory Commission and other licensed activities such as the production of electricity from nuclear power plants, production and use of radioisotopes for diagnostics and treatment of cancer and other illnesses, oil and gas exploration and other industrial uses.

The existing approach is to store the radioactive waste at sites where it is generated.

National security concerns, such as the potential for the waste to be used in "dirty bombs," were among the issues the federal agency considered in coming up with its Final Environmental Impact Statement.

A draft version was released in 2011 and, in addition to NNSS and WIPP sites, listed others analyzed as Hanford Site in Washington, Idaho National Laboratory, Los Alamos National Laboratory in New Mexico, and the Savannah River Site in South Carolina.

The new report also explained the Yucca Mountain site formerly proposed as a repository for high-level waste and spent nuclear fuel was first identified as a co-disposal option in its notice of intent but was cut from evaluation after the Energy secretary determined it would not be developed.

Plutonium plant cleanup makes progress

World Nuclear News

February 26, 2016

LINK

The two most highly contaminated pieces of processing equipment have been removed from the former Plutonium Finishing Plant at the US Department of Energy's (DOE) Hanford site in preparation for the plant's demolition later this year.

Workers wore protective suits and breathing equipment because of airborne contamination during the cutting operation (Image: DOE Richland Operations Office)

Work began to remove the two large glove boxes in June 2015. Nearly 4 metres in height, the glove boxes were too large and too heavily contaminated to remove from the building in one piece. The boxes were therefore cut into smaller pieces that have since been packaged for eventual permanent disposal. Workers cutting the glove boxes into pieces worked from the top down, and wore protective suits and breathed supplied air during the cutting operations.

Tom Teynor, project director for the Richland Operations Office, said the task was amongst the most hazardous work performed at any of the DOE's nuclear weapons production sites. "Removing the glove boxes brings the Department of Energy and our contractor a significant step closer to being ready to start demolishing the plant," he said.

The glove boxes were the most contaminated of the nearly 240 pieces of plutonium processing equipment at the plant that have been removed, or have been prepared to be removed, during demolition preparation. Demolition is expected to start later this year.

Hanford, in Washington state, was the site of US military plutonium production activities from 1943 until 1987. The site is now managed by the DOE's Richland Operations Office, which is responsible for the cleanup of all remaining waste streams at the site. CH2M Hill Plateau Remediation Company is the prime contractor for the environmental cleanup of Hanford's central plateau, including the Plutonium Finishing Plant.

INL's Gan recognized for nuclear research
Post-Register
February 26, 2016
LINK

Some nuclear scientists specialize strictly in developing better fuels. Others focus on improving structural materials, such as steel, that make up the guts of a reactor.

Jian Gan, 56, has made his Idaho National Laboratory career with big breakthroughs in both worlds. Earlier this month his 14-year track record at INL landed him the lab's prestigious Exceptional Scientific Achievement Award.

"I use knowledge from both sides, and combine it together," Gan said in a Thursday interview. "(I) have a clear understanding of, 'What's the problem?' 'What're the challenges here?' And then (I) design something unique and applicable to this environment."

Gan took an interesting path to the lab. He grew up in Shanghai and graduated from a top school, Fudan University, with a degree in physics. He was hired to teach physics at the school, a position he held for eight years. But at 30, he was ready to move on, and the U.S. became the obvious destination.

"I came to the United States because I realized I need to fully develop," Gan said. "I see the people around me, and I think maybe there's not lots of

chances for me to grow. And I know all the smart scientists and engineers are here in this country."

That growth came with a master's in physics from Central Michigan University, then a Ph.D. in nuclear engineering from the University of Michigan, where he developed his expertise in fuels. He was almost 40 by the time he graduated, but the payoff was clear: "I didn't look for a job, they looked for me."

Indeed, after a short stint at a different laboratory, INL recruiters soon came calling.

Gan spends most of his days conducting research at the Electron Microscopy Lab, located at the Materials and Fuels Complex west of Idaho Falls. He often works with massive, $2 million microscopes that can examine tiny specimens of irradiated nuclear fuel down to the atomic level.

"Twenty years ago, people working in nuclear fuel development — everyone wanted to have the information we're looking for today," he said. "But at that time, it could only be a dream, because technically it was too hard to get this information."

For one recent project, Gan investigated the internal structure of a type of nuclear fuel known as u-moly — low-enrichment fuel made up of both uranium and molybdenum. He found the "superstructure" of the fuel makes it ideal for use in small university research reactors, or for isotope production for cancer treatments. Little bubbles formed in the fuel in a "very orderly way, not out of control."

"You can see how the nuclear fuel began as a piece of solid, and at the end it looks like a piece of sponge," Gan said.

In another project, Gan has been working to develop a fiber-optic sensor that could take exact temperature measurements inside a reactor. Such a sensor,

he hopes, will help conduct more precise experiments on new types of reactor fuels and materials that are conducted at INL's Advanced Test Reactor.

Gan also is researching the materials that need to be used to construct the next generation of nuclear reactors, some of which will operate at extremely high temperatures.

"We try to explore new materials, because you want to push the temperature so high," Gan said. "When you want to push a reactor up to 800 degrees Celsius, or higher, you don't have a choice to use metal. You have to use ceramic."

Mitch Meyer, one of Gan's colleagues at the Materials and Fuels Complex, said he's watched Gan put his unusually wide area of expertise to work on many of the lab's most "instrumental" scientific contributions.

"Over the course of his career, Jian has applied his broad knowledge to help improve the performance of fuels and material systems," Meyer said in an email. "We're lucky to have him on our team."

When Gan returns to Shanghai each year, he tells people he now lives in a city of about 50,000 people. They tell him Idaho Falls sounds like a "small village." But Gan said he's come to love it in eastern Idaho. He begins feeling anxious to return when he spends more than a week or two in the city of more than 20 million.

"I enjoy working in this environment, and I've enjoyed the work at INL, and it's given me lots of opportunity," he said. "And I still have a strong interest to develop the new knowledge, the new product."

Tri-City community's help will be needed for Manhattan Project park
Tri-City Herald
February 26, 2016

LINK

Community partnerships will be important for the new Manhattan Project National Historical Park, which includes Hanford's B Reactor, said National Park Service officials at a workshop Friday in Richland.

The park service plans to hold off on establishing any "friends of the park" group for the new park through this year while it learns more about the park's home communities, said Tracy Atkins, interim superintendent of the park. The new park has sites at Hanford, Los Alamos, N.M., and Oak Ridge, Tenn.

But it would be helpful to have a nonprofit organization that would set up a trust to accept any donations for the park. The park superintendent would work with the group to determine together how money would be spent in the community on projects, such as printing brochures, supporting volunteers or putting on events.

National parks would not be what they are today without partnerships and philanthropy, said Ray Murray, chief of the park service partnership program for the Pacific west region.

The park service has a maintenance backlog of about $11.9 billion, about half of that for transportation projects, and there will not ever be enough money for projects that would benefit the parks.

But local communities are having success raising money for parks projects that resonate with the public, such as trails, he said.

Exhibit chronicles hard life for blacks at WWII Hanford
Tri-City Herald
February 27, 2016
LINK

Lula Mae Little left her close-knit community of black friends and family in East St. Louis during World War II, one of tens of thousands of people who came to work on a secret military project in the Eastern Washington desert.

Like so many recruited to Hanford during the Manhattan Project, she was seeking opportunity.

Whites and blacks played on the same baseball teams at Hanford during World War II, although friends likely formed several all-black teams.

Whites and blacks played on the same baseball teams at Hanford during World War II, although friends likely formed several all-black teams.
Courtesy DOE

Recruiters were advertising free room and board, high wages and overtime pay.

Little took a job as a mess hall waitress. But she only stayed a few months.

Discrimination and racism were so bad that she often referred to Hanford as the “Mississippi of the North.”

Her story is told in The Atomic Frontier: Black Life at Hanford, an exhibit at the Northwest African American Museum in Seattle that coincides with the creation of the new Manhattan Project National Historical Park.

“Black women in particular got the short end of the stick,” said Jackie Peterson, the guest curator of the exhibit. The exhibit was mounted with the help of the African American Community Cultural and Educational Society in the Tri-Cities.

Retaining employees was difficult at Hanford. But added to the difficulties that all workers faced — isolation, boredom, brown-out dust storms and a

project so secret they were not told what they were working on — black workers faced segregation and discrimination both on and off the job.

Black Life at Hanford exhibit

Before the war there were 27 blacks living in the Tri-Cities. DuPont, the Hanford contractor for the Manhattan Project, reported that 4,200 to 6,000 blacks worked at Hanford in its earliest years, although that estimate may be low because of the high turnover on the project.

Fearing that Germany was building an atomic bomb, the United States raced to produce its own atomic weapon. Hanford, one of several Manhattan Project sites, had the world's first full-scale nuclear reactor and produced the plutonium used for the world's first atomic explosion and the atomic bomb dropped on Nagasaki, Japan, helping end WWII.

Recruiting was done across the nation, but most of Hanford's black workers were recruited from the south. They came from Mississippi, Alabama, Georgia, South Carolina,Texas and Arkansas.

Even those who were used to discrimination, like Rosa Lee Byrd, were dismayed at the conditions they found in Hanford.

"Rosa Lee was hopeful that Hanford would offer a much different environment than what she left behind," according to the exhibit. "Yet in just a few months after her arrival, she had experienced the same kinds of deep racism and discrimination she had grown up with."

Before a year was up, like her friend Little, she left Hanford. Eventually she moved to Seattle and went to work as a welder.
Black Life at Hanford exhibit

At Hanford, blacks were mostly assigned to general labor jobs, despite their training and experience. They made up the majority of general unskilled

labor, including carpentry, concrete pouring and finishing, trash collection and truck driving, according to the exhibit.

They also did domestic work — cooking, cleaning, serving — particularly as the initial building was completed and less construction labor was needed.

“What a waste of resources,” said Mwendo Campbell of Seattle, during a recent visit to the museum. Workers who could weld or had other construction expertise “pushed a mop around,” she said.
It’s puzzling that such an important project during a critical time in the nation’s history would put so much effort into discrimination, she said.

Perhaps it was because not only did black workers come from the South, but many white workers did, too. They arrived with the expectation that the segregated lifestyle they experienced in the South would continue.

But in one way life for black workers at Hanford was better than in the South.

A 1941 federal mandate barred federal contractors from paying lower wages based on race.

“I knew something about concrete work, and I became a cement finisher,” the exhibit quotes Luzell Johnson as saying. “I made $1.75 an hour, six days a week, eight hours.”

New barracks and recreation facilities were built at Hanford for a workforce that grew to as many as 50,000 employees.

Black Life at Hanford exhibit

In 1943 as work at Hanford began, there were 110 barracks for white males and 21 for black males. White women were assigned to 57 barracks and black women were assigned to seven barracks.

Husbands and wives lived in separate dorms. If they wanted to move out, their choices were few. Hanford boasted that it housed its workers in the largest trailer park in the world during WWII. But the trailer lots for black workers were segregated and in less desirable areas of the park.

Kennewick had no black residents even into the 1960s, according to news reports. In Pasco, blacks could live in the rundown eastern section of the city. There they began to open food shacks, bars and barber shops.

Elsewhere in Pasco, “many retail stores and restaurants refused to serve black customers,” according to the exhibit.
Entertainment opportunities at Hanford were not only separate, but unequal.

In 1944, desperate to retain its homesick workforce, DuPont planned a month-long schedule of Christmas and New Year’s entertainment. Each day featured entertainment for “white” and “colored.”

On Dec. 28, a stage show was planned for whites and a card tournament for blacks. On New Year’s Eve, a dance featuring “King” was the highlight for whites. Blacks were offered Bingo, a ping pong tournament and a general party.

Black Life at Hanford exhibit

Year-round games or sports, mingling in the segregated tavern and attending on-site church services provided not only a necessary social outlet but also a way to share information, from news of back home to where to eat outside of Hanford, according to the exhibit.

Hanford would continue to produce plutonium through much of the Cold War, but black workers would not retain their jobs once WWII ended.

In 1943, Hanford commanding officer Col. Franklin Matthias wrote in his diary about a discussion with Washington Gov. Arthur Langley: “He hopes

arrangements can be made to return most of the construction workmen back to their original centers of activities, particularly the Negroes."

Although qualified blacks had applied for permanent Hanford work, none were employed, a 1949 American Civil Liberties Union report said.

Many of the blacks who had not already left Hanford for better opportunities, returned to their home states. Others found jobs with fair pay in larger Northwest cities.

But some would remain in the Tri-Cities, to make a permanent home for themselves and future generations.

"Wherever black workers landed after leaving Hanford, many would credit their long-term prosperity to their days of working on the atomic frontier," the exhibit said.

SRS facility resumes process to create nuclear fuel
Augusta Chronicle
February 28, 2016
LINK

Savannah River Site's H-Canyon has resumed a "key step" in the facility's process to make commercial nuclear fuel.

The second uranium cycle, which had not been run in three years, restarted this month, allowing the H-Canyon to further its efforts in eliminating or minimizing material through nuclear stabilization and out-of-state disposition, according to a Department of Energy statement released Tuesday.

The H-Canyon is the only production-scale nuclear chemical separation facility in operation and was originally constructed to produce weapons-grade nuclear material.

In its current role, it produces fuel for commercial reactors by creating low-enriched uranium through a blending process involving high-enriched and natural uranium. The facility has previously provided about 300 metric tons of uranium to the Tennessee Valley Authority, a partnership also expected to resume.

“We are really excited to be back in operation,” facility manager Stephanie Hudlow said. “The operations team did an excellent job with procedure execution and recognizing the need for slow and deliberate operations since it has been so long since this equipment has run.”

When asked why the process had not run in three years, Savannah River Nuclear Solutions spokeswoman Barbara Smoak said “portions of the canyon that are being used for the second uranium cycle were not necessary for the materials being dispositioned during that time.”

Before the operation could resume, H-Canyon underwent upgrades and a readiness assessment, and its workers received additional training.

NEW OXIDATION TECHNIQUE COULD HELP RESOLVE SPENT FUEL CHALLENGES

Idaho National Laboratory Blog

February 25, 2016

LINK

A cooperative research partnership between Idaho National Laboratory and university researchers has yielded a new oxidation technique that could help greatly improve technologies available for recycling spent nuclear fuel.

“This development is exciting not just because of its potential benefit, but also from a pure science point of view,” said Bruce Mincher, a chemist in INL’s Aqueous Separations and Radiochemistry Department. “Until now, no

one has ever been able to electrolytically oxidize americium under realistic conditions. This is the kind of thing that really turns us chemists on."

Working with colleagues at the University of North Carolina (UNC) Chapel Hill campus, Idaho National Laboratory chemists have discovered a way to oxidize americium into a form that makes it easier to separate from spent fuel. The technique used by UNC and INL chemists uses special electrodes that collect the americium and then electrolytically oxidize it to a form that is easier to separate. The technique also avoids the need for hazardous reagents used in chemical oxidation methods.

The UNC-INL chemists' findings were first published in the Nov. 6 issue of the multidisciplinary research journal Science. INL's Mincher worked with UNC's Christopher Dares, Alexander Lapides, and Thomas Meyer to complete the research.

P-5583-15

INL chemist Bruce Mincher working at the americium glovebox.
Because our quality of life depends on an adequate supply of clean energy, and given the rapidly increasing human population, ensuring adequate energy supplies for the future will require a mix of energy sources. Nuclear energy will be a necessary part of that mix, in part because carbon dioxide is not among its waste products. However, to be sustainable for the long term, responsible disposition of the radioactive waste products of nuclear power plants is a crucial issue.

Nuclear energy research is underway across the U.S. and worldwide on the best ways to separate the transuranic radionuclides from spent fuel so they can be recycled for use in a reactor, rather than disposed in an underground repository. Removing transuranic elements from spent fuel has the potential to greatly reduce the hazards of dealing with spent fuel. Current technologies in practice in the U.S. and most other nations using nuclear power leave varying amounts of americium in the spent fuel. Because of its properties,

americium presents one of the biggest challenges for dealing with spent nuclear fuel, and it is very difficult to separate.

“It was very gratifying to work with our UNC partners on this project,” Mincher said. “Our work with americium was very technically challenging, but our progress could help lead to technology that keeps these isotopes out of repositories and instead fissions them away in an advanced reactor while producing more electricity. This, in turn, could greatly reduce the challenges associated with managing spent nuclear fuel.”

Link:

“Low potential electrochemical oxidation of 243Am(III) in nitric acid by a derivatized, high surface area metal oxide electrode”; Dares, C.J.; Lapides, A.M.; Mincher, B.J.; Meyer, T.J.; Science, Nov. 5, 2015. www.sciencemag.org